

Appl. No. 09/827,256
Amdt. dated February 16, 2005
Reply to Office Action of November 16, 2004

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Amendments to the Claims:

Please amend claims 5, 24, 27, 34, 35, and 37, and please cancel claims 8 and 36 as follows. This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. - 4, (canceled)

5. (currently amended) A spectral label identification method comprising:
spatially restraining a first spectrally labeled body at a site in an array of sites;
generating a first spectrum from the first body while the first body is spatially restrained, the first spectrum having a plurality of signals at differing wavelengths;
dispersing the first spectrum from the first body across a sensor surface;
identifying the first body from the dispersed first spectrum;
spatially restraining a second spectrally labeled body at the site;
generating a second spectrum from the second body while positioning the second body, the first spectrum being different than the second spectrum, the second spectrum having a plurality of signals at differing wavelengths; and
identifying the second body from the second spectrum, wherein a first plurality of spectrally labeled bodies are simultaneously spatially restrained at the [[an]] array of sites when the first body is restrained, and wherein a second array of spectrally labeled bodies are simultaneously spatially restrained at the array of sites when the second body is restrained.

6. - 10. (canceled)

11. (previously presented) A spectral label identification method comprising:
sequentially spatially restraining a first spectrally labeled body;
generating a first spectrum from the first body while the first body is sequentially spatially restrained;

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dispersing the first spectrum from the first body across a sensor surface;
identifying the first body from the dispersed first spectrum;
sequentially spatially restraining a second spectrally labeled body;
generating a second spectrum from the second body while positioning the second body, the first spectrum being different than the second spectrum;
identifying the second body from the second spectrum, wherein a plurality of spectrally labeled bodies are simultaneously spatially restrained at an array of sites;
drawing the first body into an opening by drawing fluid into the opening, expelling the body from the first opening, and drawing the second body into the opening by drawing fluid into the opening, the signal generating steps being performed while the first and second bodies are sequentially disposed within the opening; and
drawing fluid into an array of openings and expelling fluid from the array of opening so as to sequentially restrain a plurality of arrays of bodies.

12. - 16. (canceled)

17. (previously presented) A method comprising:
spatially restraining a plurality of spectrally labeled bodies so as to define an array;
directing a spectrally dispersed image of the array of bodies onto a sensor to sense spectra generated by the bodies;
identifying the bodies from the spectra sensed by the sensor, wherein the bodies are restrained within an array of openings affixed in a multi-well plate.

18. (currently amended) A method as claimed in claim 17, further comprising drawing the array of bodies into the array of openings by drawing fluid into the openings, expelling the array of bodies from the openings by expelling fluid from the openings, and drawing another array of bodies into the array of openings by again drawing fluid into the openings.

19. - 23. (canceled)

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24. (currently amended) ~~The method of claim 27, A method comprising:~~
~~releasing a plurality of bodies in a fluid;~~
~~spatially restraining a first body within the fluid by transmitting restraining energy~~
~~through the fluid toward the body;~~
~~generating a first spectrum from the spatially restrained first body, the first~~
~~spectrum having a plurality of signals at differing wavelengths; and~~
~~identifying the first body from the first spectrum;~~
~~wherein the spatially restraining step is performed with a focused laser beam, the~~
~~laser beam acting as an optical tweezers, and~~
wherein the focused laser beam is configured to restrain a plurality of the bodies
simultaneously.

25. (original) The method of claim 24, wherein the trap is elongated so that
the restrained bodies are arranged along a line.

26. (canceled)

27. (currently amended) ~~The method of claim 24, A method comprising:~~
~~releasing a plurality of bodies in a fluid;~~
~~spatially restraining a first body within the fluid by transmitting a focused laser~~
~~beam through the fluid toward the body so that the laser beam acts as an optical tweezers;~~
~~generating a first spectrum from the spatially restrained first body, the first~~
~~spectrum having a plurality of signals at differing wavelengths, wherein the restrained body~~
~~generates the spectrum in response to the restraining energy; and~~
~~identifying the first body from the first spectrum.~~

28. - 31. (canceled).

32. (previously presented) A method comprising:
releasing a plurality of bodies in a fluid;

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spatially restraining a first body within the fluid by transmitting restraining energy through the fluid toward the body;
generating a first spectrum from the spatially restrained first body;
identifying the first body from the first spectrum,
wherein the spatially restraining step is performed with a focused laser beam, the laser beam acting as an optical tweezers, and
wherein the focused laser beam is configured to restrain a plurality of the bodies simultaneously;
moving the restrained body within the fluid by moving the restraining energy or the fluid;
sweeping the restraining energy through the fluid to move the first body toward a first site;
sweeping the restraining energy through the fluid to move a second body toward a second site; and
inhibiting transmission of the restraining energy between the first and second sites.

33. (canceled)

34. (currently amended) A multiplexed assay system comprising:
a support structure having an array of sites;
a plurality of bodies, each body having a label for generating an identifiable spectrum in response to excitation energy, the spectrum having a plurality of signals at differing wavelengths, the bodies being restrainingly receivable at the sites, and releasable from the sites so as to allow another plurality of bodies to be received at the sites; and
an optical train imaging at least one site on a sensor surface, the optical train including a wavelength dispersive element.

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35. (currently amended) A multiplexed assay system comprising:
a support structure having an array of sites wherein the sites comprise openings in
the support structure;

a plurality of bodies, each body having a label for generating an identifiable
spectrum in response to excitation energy, the bodies being restrainingly receivable at the sites,
the openings sized to receive a single body therein so as to separate the individual bodies for
discrete imaging; and

an optical train imaging at least one site on a sensor surface, the optical train
including a wavelength dispersive element.

36. (canceled)

37. (currently amended) The assay system of claim 35 [[36]], wherein the
bodies and support structure are exposed to a fluid, and further comprising means for restraining
the bodies within the openings.

38. (original) The assay system of claim 37, wherein the restraining means
releasably restrains the bodies within the openings, releasing of the bodies allowing the bodies to
move with the fluid and out of the openings.

39. (original) The assay system of claim 35, further comprising a pump
coupled to the openings for at least one of:

drawing fluid and the bodies into the openings, and
expelling fluid and the bodies out of the openings.

40. (original) The assay system of claim 34, wherein the sites comprise a
discrete array of a material capable of bonding to the bodies.

41. (original) The assay system of claim 34, wherein the optical train
comprises a scanner for moving a sensing field among the sites.

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42. (original) The assay system of claim 34, wherein the sites are separated sufficiently along a dispersive axis of the dispersive element to avoid excessive overlap of dispersed spectra generated simultaneously by the bodies at the sites.

43. - 44. (canceled)

45. (previously amended) A multiplexed assay system comprising:
a plurality of bodies released in a fluid, the bodies having labels for generating identifiable spectra, the spectra having a plurality of signals at differing wavelengths;
an energy transmitter coupled to the fluid so as to spatially restrain at least one body with a restraining energy beam; and
a sensor oriented to receive the spectrum from the at least one body wherein the at least one body generates the spectrum in response to the restraining energy beam.

46. (canceled)

47. (previously presented) The multiplexed assay system of claim 45, further comprising a scanner coupled to the restraining energy beam so as to move the restraining energy beam within the fluid.

48. (original) The multiplexed assay system of claim 47, wherein an optical train images the site toward the sensor, the energy transmitter configured to move the at least one body toward the site.

49. - 52. (canceled)

53. (previously presented) The multiplexed assay system of claim 45, wherein the restraining energy beam is configured to restrain a plurality of the bodies along a line.

54. (previously presented) A multiplexed assay system comprising:
a plurality of bodies released in a fluid, the bodies having labels for generating identifiable spectra;

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an energy transmitter coupled to the fluid so as to spatially restrain at least one body with a restraining energy beam, the restraining energy beam configured to restrain at least one body along a line, and an optical train directs a dispersed image of the bodies from along the line onto the sensor surface, the dispersed image having a dispersion axis at angle to the line; and

a sensor oriented to receive the spectrum from the at least one body wherein the at least one body generates the identifiable spectra in response to the restraining energy beam.